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## ABSTRACT

A study was conducted to investigate empirically the nature of program development, testing Everett Rogers' model of collective adoption of an innovation against the data, and distinguishing between the developmental patterns of high and low quality programs. Subjects were 34 school districts representing a 10 percent sample of 340 districts receiving state funds through the Illinois statewide gifted program. Questionnaire and interview data were collected from directors, teachers, and students to rate programs in terms of quality; identify and quantify independent variables (55 were grouped into six types); and compile program case histories to discover distinct patterns of program development. The development of a new quality program was found to be dependent upon the interaction of a small number of powerful variables: size of the developing unit, the norms of the unit toward the innovation, the opinion leadership exerted within the district in behalf of the innovation, the status of the advocate within the system, and the contact of the system with the outside world. No districts followed the Tylerian "behavioral objectives" model, and Rogers' "adoption" model could not order data in appropriate temporal sequence. Data is most economically described by an "advocate" model of program development which incorporates sociological and political considerations. (Included are a 19-item bibliography and discussion of the advocate model and implications for educational change.) (JS)

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DEVELOPMENT OF EDUCATIONAL PROGRAMS:  
ADVOCACY IN A NON-RATIONAL SYSTEM

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## THE DEVELOPMENT OF EDUCATIONAL PROGRAMS-- ADVOCACY IN A NON-RATIONAL SYSTEM

### PROGRAM DEVELOPMENT MODELS

Educators have always operated at the folklore level of knowledge which means that rules of thumb are handed down innocent of investigation. This is especially true in developing programs and curricula. Most models are prescriptive ones based on a logical analysis of what should occur. Certainly the most pervasive of such models is the one promoted by Ralph Tyler (1950) twenty years ago. The steps explained in the model are these:

1. Select the objectives.
2. Select the learning experiences appropriate to achieve the objectives.
3. Organize the learning experiences.
4. Evaluate learning.

If one carefully examines other such models (and each project seems to have one), he will see that it is often the Tyler model in elaborated, and sometimes tortured, form. Indeed, many professors of education have made a good living by pounding away at their students on the inevitability of "behavioral objectives" as a necessary and sometimes sufficient condition for the development of a good program. Some developers of programmed materials and some well-financed projects claim to make good use of such models. More recently, several voices familiar with curriculum development have protested the wisdom and the utility of such an approach (Atkin, 1968;

Romey and Irwin, 1970).

A second type of model, a more recent one, rests on the belief that the local program developer is forced to adopt already completed materials to his own ends. He has not the time, nor money, nor talent to create a totally new package. Invariably he must assemble a somewhat eclectic program collected from other sources. Program development then becomes a matter of adopting new practices.

Adoption models are often applied prescriptively. However, they raise the possibility of a descriptive model, of describing with some accuracy what actually does take place in the development of an educational program. It would seem that knowing what does occur might help us understand, control, and improve the total process.

One model which does attempt a description of how an organization collectively adopts a new idea or technique has been proposed by the rural sociologist Everett Rogers (Rogers, 1968). He recognizes four stages:

#### ROGERS' MODEL OF COLLECTIVE ADOPTION OF AN INNOVATION

1. Stimulation or awareness by someone that a need for a certain innovation exists. The stimulator(s) is often an outsider to the system, or else a cosmopolite member who is oriented externally, with many of his social relationships in other systems.
2. Initiation or promotion of the introduction of the new idea in the social system, usually by a small number of individuals who are very much oriented to change and who may include the original stimulator(s) but often do not. At this stage, alternative means of meeting one of the system's needs are explored, and interest develops in a specific innovation.
3. Legitimation or decision to adopt or reject the innovation by those in power. The legitimizers in most systems, research suggests, possess both formal and informal symbols of social status and respect. They are responsible for making decisions on the basis of what is good for the entire system; if this role is not fulfilled, they often lose their authority.
4. Execution or putting the decision into action. This activity is often delegated by the legitimizers to persons of lower

status or less power.

Note that this model rests on a few assumptions. One is that the institution is engaged in collective decision-making in which individuals may adopt or reject an innovation by consensus. Rogers also recognizes "optimal decisions" in which an individual can adopt or reject a new practice regardless of other people in the system, "contingent decisions," in which the individual may adopt only after a group decision but is not forced to conform, and "authority decisions" in which an innovation is forced on an individual by a superordinate. In the public schools collective and contingent decisions are most prevalent, according to Rogers.

A second point worth noting is that the model is essentially linear. Although Rogers recognizes that the stages can sometimes occur out of sequence, as for example when an authority figure legitimizes the innovation before anything else occurs, he fully expects most adaptations to proceed along the given sequences. Insofar as the assumptions on which the model is based are correct, one would expect it to be an accurate description, rather than a prescription, of how local districts adopt new ideas and hence develop new programs.

#### NATURE OF THIS STUDY

Rarely has empirical evidence been gathered to answer the question of how programs develop. An opportunity to investigate the process of program development arose during the evaluation of the Illinois Gifted Program. Beginning in 1967 the Office of the Superintendent of Public Instruction funded a four-year, half-million dollar evaluation of the statewide gifted program in Illinois. The state operation was designed to be a model plan for stimulating local program development.

Each district was allowed to define gifted children as it so chose and to develop almost any type of program. However, the state promoted various activities to influence the local districts to develop certain kinds of programs. The purpose of the evaluation was to assess the total effect of the state plan and to determine the relative contributions of various components.

Since 1963 the State of Illinois has funded one of the largest and most comprehensive gifted programs in the country. The Office of the Superintendent of Public Instruction has administered the program in five sections: reimbursement, which provides school districts with money on a formula basis to operate a program for students identified as gifted; demonstration, which provides extra money for districts to demonstrate selected programs; training, which provides funds to train teachers, usually in summer institutes; and experimental, which supports applied research and development and evaluation in the area of the gifted. A state staff of 13 oversees the entire program.

Currently, there are about 400 reimbursement districts, 23 demonstration centers, 7 experimental projects, and 5 training institutes. Funding is \$4 million a year. The variety of different projects is very great indeed, ranging from music and creativity programs to Individually Prescribed Instruction and team teaching to "new curricula" and pre-school programs. Each district is allowed to define "gifted" as it so chooses, although some guidelines are provided. (House, et al, 1970a).

The rationale for evaluating the total program was based on Stake's model of evaluation (Stake, 1967). A central tenet was to amass a large amount of data about individual programs rather than relying on data produced by one or two instruments. Consequently more than twenty-five different kinds of data were collected by various methods, resulting in a comprehensive picture of each program under study. Based on this data judgments of quality were then made about different programs.

Also collected were case histories of the individual programs, as well as information about the background of the individuals involved, the nature of the school district and so on. The collection of the case history information was necessarily after the fact and collected through

interviews with the program directors and teachers. Attendant information, such as the number of pupils in the district, was gathered from other sources.

The purpose of the study was to ascertain the sequence of events necessary to program development and, further, on the basis of judgments of quality about the individual programs, to distinguish the different patterns of development leading to high and low quality programs. Since it was a specialized program, the outlines should be relatively distinct within the local district. In addition, the most likely sources of innovations had already been defined by the state plan itself, e.g., the state demonstration centers and training institutes. Finally, considerable confidence was placed in the measures of quality of program because a primary concern of the evaluation project was assessing the worth of individual programs.

For these reasons the situation seemed appropriate for investigating empirically the nature of program development, testing Rogers' model against the data, and distinguishing between the developmental patterns of high and low quality programs.

#### The Sample

The subjects in this study were 34 school districts representing a 10% sample of 340 districts in Illinois. Since the study was part of an evaluation of the Illinois Gifted Program, only districts receiving money from the State were included in the population. The number of local gifted programs operating without State funds had been previously determined to be small. The population was further restricted by excluding all districts which were participating in the State program for the first time, the assumption being that first year districts

would have very little underway. Hence, the population was restricted to the 340 districts receiving state funds for two or more years. An inspection of a distribution of the districts according to size showed that the population resembled a chi-square distribution with two degrees of freedom. A random sample would produce an oversupply of very small districts. Hence the Sethi method of stratification was used.

The Sethi method provides a means of separating the total population into equal strata and then drawing randomly from these. (Hess et. al. 1966) Since three to six strata provide an accurate population estimate, three strata were used--small, medium, and large. Using Sethi's approximations, the cut-off points were 1375 students for small/medium districts and 4939 for medium/large. The population was also stratified on the basis of legal type--elementary, secondary, and unit districts. Using these strata then, the sample of 34 was randomly drawn proportional to the population in each cell.

#### Data Collection

The purpose of the data collection was to assemble two types of information. First were the data used to rate programs in terms of quality. Existing rating scales and other instruments were examined and found to be too arbitrary. An attempt was then made to construct special scales, but these too were deemed to harbor too many implicit and untested assumptions, the tendency being to assess those dimensions easy to measure.

Rather than collect easily quantifiable but inappropriate data, it was decided to amass as total a description of each program as possible and rate these. To this end instruments were constructed and two interviewer-observers teams were trained in their use. After field-testing instruments separately, the total sequence was tried out in 8 field test

schools. Program directors were notified that the teams were coming and after some persuasion and guarantees that the identity of the districts would not be revealed, all 34 districts cooperated. Reliability was obtained by comparing the interviewees' responses.

The following data were collected:

1. Director Interview--A two-hour structured interview with the program director which contained several questions on the program activities, goals, standards for student success, student identification, teacher training, teacher selection, teaching materials, and evaluation procedures.
2. Teacher Interview--A one-hour interview with each of two teachers from the program on the same topics as the director interview plus the role of the director and unintended outcomes of the class.
3. Student Interviews--A half-hour interview with each of two students in the program including the goals, activities, student success, student evaluation, plus the best things about the class and what the student would change if given the chance (see Figure 1).
4. The Class Activities Questionnaire--An evaluation instrument filled out by the program director, teachers and all students which gives a reading on:
  - a. Seven cognitive factors derived from Bloom's Taxonomy.
  - b. Seven affective factors such as enthusiasm, independence, amount of discussion opportunity, etc.
  - c. Estimates of amount of teacher talk and homework.
  - d. Open-ended comments about the class.

FIGURE 1

Data Collected Through Interviews

| Data                      | Source  |         |          |
|---------------------------|---------|---------|----------|
|                           | Student | Teacher | Director |
| 1. Activities             | X       | X       | X        |
| 2. Goals                  | X       | X       | X        |
| 3. Student success        | X       | X       | X        |
| 4. Teacher approach       | X       |         | X        |
| 5. Student evaluation     | X       | X       |          |
| 6. Student identification | X       |         | X        |
| 7. Influence              |         | X       | X        |
| 8. Training               |         | X       | X        |
| 9. Unintended outcomes    |         | X       |          |
| 10. Teacher selection     |         |         | X        |
| 11. Materials             |         |         | X        |
| 12. Evaluation            |         |         | X        |
| 13. Director role         |         | X       |          |
| 14. Best things           | X       |         |          |
| 15. Changes               | X       |         |          |

5. Classroom Observation--One class period was observed and three Flanders Interaction sessions were recorded. In addition the observer wrote down all student and teacher questions.
6. Documents--The original proposal submitted to the state, the proposed budget for the program, a midterm and final exam from each teacher, and a seven-page survey form were also collected.

The data mentioned above served primarily as the measures of the dependent variable--quality of the program. The independent variables were derived partly from the interviews and partly from other sources. In each district program directors were asked to relate, in their own words, how their program had come about. In addition they were asked who had influenced their program, what their own training was, how they had selected teachers, etc. Two teachers in each program were also asked who had influenced them, what their training was, how the program director helped them, etc. This data was summarized into 34 case histories detailing the background of each program as related by the program director and teachers.

In addition, from the interview data and documentary sources, 55 independent variables about the program were identified and quantified. Grouped by type these variables included the following:

District Characteristics--the number of students in each district, equalized assessed valuation, when the program was started, number of years receiving state funds, whether the program was started to obtain money, legal type of district, whether the administrator was the main influence, etc.

Director Characteristics--the degree of director involvement in each program, whether the director was a line administrator, the director's training.

Communication Variables--Number and kinds of visits from outside consultants, e.g., university consultants, state staff, demonstration directors, and whether the district had an in-service training program.

Teacher Characteristics--The reported basis for teacher selection, total years teaching, and amount of formal training.

Budget Variables--The budgets for each program were analyzed into ten categories and the percentage of funds spent in each category coded, e.g., percent for administration salary, in-service training, consultants, etc.

Proposal Indices--In a separate study Erlandson (1969) derived three indices by examining and scoring 250 reimbursement proposals submitted to the state--a Stimulation Index which is a measure of the number of separate gifted programs a district has operating; a Corrected Stimulation Index which is the Stimulation Index corrected for the size of the district, and a Growth and Continuity Index, which indicates the degree of continuous development within a district's program. All of these indices were derived from scoring proposals and budgets of the districts. The scores available for our sample were used in the analysis.

## RESULTS

Program Quality-The Dependent Variable--The purpose of rating programs was to arrive at a single criterion measure of program quality that could be related to the program development variables. A panel of four people reviewed all the data collected from the on-site visits and rated each program. As the panel progressed it became clear that by "program quality" they meant a combination of two criteria--the level of development of the program (how clearly defined were the goals and activities of the program) and the appropriateness of these goals and activities

for gifted children. The final classification scheme developed was as follows:

QUALITY RATING SCALE:

- |                        |                                                                                                                                                                                                                                                    |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A = High Quality --    | A highly developed and well executed program utilizing good ideas which are appropriate for the gifted.                                                                                                                                            |
| B = Medium Quality --  | An operational and fairly adequately executed program utilizing good ideas which are appropriate for the gifted.                                                                                                                                   |
| C = Limited Quality -- | An underdeveloped, poorly executed program utilizing traditional approaches marginally appropriate for the gifted.                                                                                                                                 |
| D = Low Quality --     | A developmental program with no classes of students meeting at least one hour per week; a coordinated training program for teachers may be in operation but goals and activities for gifted students are either not appropriate or underdeveloped. |
| F = No Program --      | District has been funded more than one year but has no classes in operation, no students identified and no coordinated training program for teachers or students.                                                                                  |

The panel had before it detailed descriptions of the goals and activities of each program as defined by the program director, teachers, students, and the evaluation instruments (Flander's Interaction Analyses and CAQ profiles). Later analysis revealed that where the Class Activities Questionnaire (CAQ) was available, it played a strong role in the judges' decision. The correlation between the final ratings of the program and Factor I of the CAQ was .64. Factor I consists of classroom emphasis on the higher thought processes of synthesis and application and students reporting they are excited, actively involved in class activities, and encouraged to independently explore new activities. (Steele, 1970). The Factor I scores were not available to the judges as such but many subscores

on the CAQ were. Since the CAQ was developed to evaluate the state gifted program, it was quite consistent with state goals. All in all, the more distinct the goals and activities of a program and the more reflective of the criteria measured by Factor I of the CAQ, the higher the rating the program received.

### The Case Histories

The purpose of the 34 case histories was to discover distinct patterns of program development and relate these patterns to high and low quality programs. From the case histories it was apparent that a primary motivation for starting programs was the availability of extra money from the state (about \$2 per student in the district). One-third of the program directors openly admitted that the program was started in order to get the money. Another one-third had some kind of program already going, usually honors or advanced placement before they started receiving state funds, most often begun under the influence of a teacher, parent, or university consultant. Altogether 38% of the programs were first stimulated by a person outside the school district. In 56% of the districts the program was begun by a line administrator, that is, a principal or superintendent, almost always in order to get the money, although the original stimulus may have been someone external to the school district.

After receiving the money, a program director was appointed, as required by the state. In 56% of the districts the director turned out to be a line administrator. At this stage the school district usually sent its teachers to special demonstration centers to observe state-approved programs and/or invited outside consultants to visit the district. The

state also encouraged districts to start an in-service training program and one-third did so. Somewhat later certain teachers were selected, students identified, and special classes started.

Other than these findings it was impossible to define recurrent sequences of events among the case histories. Efforts to categorize events into Rogers' model of collective adoption were not very successful. In many case histories the "stimulation" phase was recognizable and in some cases the "initiation" phase could be found. But the rest of the events could not be placed within the latter two phases with any certainty. Clear-cut decision-making, delegation of authority, and execution of program were not apparent. In one district the pattern might approximate Rogers' model while in another a teacher might develop a program without the knowledge of the program director. Even after abandoning Rogers' model no other patterns emerged. In fact, the sequence of events varied so erratically from district to district that they appeared to be almost random.

Several problems may account for the lack of order in the data. Since each respondent was allowed to relate his program's history in his own terms with few probes from the interviewer, considerable data was missing in several instances. However, even in cases where the information was quite detailed, events usually did not follow the sequence posited by Rogers.

A more serious difficulty lies in the model itself. The model assumes that once "stimulation" occurs, the school system "qua" system diligently searches for a solution to the problem brought to its attention.. Alternative solutions are examined; one is selected and legitimized by the administration, and finally executed by the teachers. The model assumes

rational problem-solving behavior on the part of the system. In fact the district acted neither rationally nor as a unit. For most administrators the "problem" was finding more money and was solved when funds were received from the state. Occasionally teachers launched a program of their own but this was seldom overtly legitimized. Rarely was a rational collective decision-making effort in evidence. Based on this analysis the attempt to define a few discrete sequences of events leading to quality programs was abandoned.

#### Correlates of Quality Programs

Although identifying developmental sequences did not seem profitable it was still possible to see what developmental characteristics were associated with program quality. To identify such relationships the 55 independent variables that had been coded were correlated with the rankings of program quality. The variables significantly associated with program quality are grouped below.

District Characteristics: The quality ratings were inserted into the sampling matrix to show the average rating of quality for each of nine combinations of size and structure. (Figure 2)

Four findings are immediately apparent in the chart:

- 1) Small districts (which are funded at a low level) have not produced quality programs.
- 2) Both medium and large districts have produced quality programs.
- 3) Unit districts produce higher quality programs than elementary or high school districts.
- 4) The quality of the program improves with increasing size for unit districts.

FIGURE 2

QUALITY OF REIMBURSEMENT GIFTED PROGRAMS

(Based on a stratified random sample of 10% of school districts participating more than one year.)

| SIZE OF DISTRICT                                                                             | ADMINISTRATIVE UNIT*                    |                                              |                     |
|----------------------------------------------------------------------------------------------|-----------------------------------------|----------------------------------------------|---------------------|
|                                                                                              | Unit (K-12)                             | Elementary (K-8)                             | High School (9-12)  |
| <b>SMALL</b><br>49% of the districts have less than 1375 students; Average funding: \$1450.  | B<br>C<br>F<br>F<br>F<br>F<br><b>D-</b> | C<br>D<br>F<br><b>D</b>                      | C<br>F<br><b>D</b>  |
| <b>MEDIUM</b><br>37% of the districts have from 1376-4939 students; Average funding: \$5467. | A<br>B<br>B<br>B<br>C<br><b>B</b>       | A<br>B<br>B<br>C<br>C<br>D<br>D<br><b>C+</b> | B<br>C<br><b>B-</b> |
| <b>LARGE</b><br>14% of the districts have more than 4939 students; Average funding: \$22,403 | A<br>A<br>A<br>A<br>A<br>B<br><b>A</b>  | B<br>C<br>D<br>D<br><b>C-</b>                | B<br><b>B</b>       |

\*Small letters on the left in each cell indicate the rating of school districts in the sample drawn for each category.

Quality Rating Scale

A = High Quality

B = Medium Quality

C = Limited Quality

D = Low Quality

F = No Program

It is quite difficult for a district with less than 1375 students to mount any kind of successful program. Generally the larger the district the better the program ( $r = .41$ ) but the pronounced increase in quality is between the small and medium-large districts. The only gifted program of any merit within our sample of small districts is a music program in which the teacher works with five students.

In most studies on innovation, size of the innovating unit is an important factor. Rogers attributes the importance of size to the fact that larger systems have more "slack" resources to devote to an innovation. Large units can better afford to specialize and invest substantial reserves.

The independent effects of size and money are impossible to assess since the amount of money granted by the state is awarded on a per capita basis. The amount of money granted is related to quality of program ( $r = .49$ ). Using the same reasoning as above, it would appear that a district would need a minimum of \$2800 per year to develop a quality program and that \$5400, the average yearly amount received by medium-sized districts, would be a more secure figure.

Since the inception of state funds in 1963, 150 districts have solicited funds at some time and then dropped out of the state plan. In a related study Leavell (1970) conducted 15 interviews in a stratified random sample of these districts inquiring about their reasons for dropping out. From these interviews he developed a questionnaire which he administered to all the involved districts. The main reasons given for leaving the state program were these:

- 1) Insufficient funds from the state.

- 2) Lack of trained personnel at the local level.
- 3) Insufficient funds from the local district.
- 4) The state aid is too categorical.
- 5) Gifted programs do not meet local needs.

These districts were also very small. Without question, size of the district and special funds granted to the program are important correlates of quality. On the other hand, the wealth of the district as indicated by the equalized assessed valuation, is not important. Neither is the location of the district (e.g., middle-class suburb) nor the grade level at which the program is applied.

Another important correlate of quality is whether the district recognizes a need for having a gifted program ( $r = .39$ ). Starting a gifted program to get state money does not seem to affect the program quality very much. A negative relationship with quality is found when the program is started by an administrator. Such a program is not likely to be a good one. ( $r = -.37$ ). Whether the program was partly in operation before or was stimulated by people external to the district seems unrelated to quality.

Finally, the longer the district has been receiving state monies, the better the program ( $r = .43$ ). However, as later analysis will reveal, this is primarily because the larger districts were the first to receive state funds.

Director Characteristics: Each district is required to designate a program director. More than half of these are acting superintendents and principals. Only 11% are full-time directors. As noted above, if the program was started by a line administrator, the quality of the program is likely to be poor ( $r = -.37$ ). This seems to be the case because the line administrator

is quite likely to appoint himself or another line administrator as program director. It should not be surprising, then, to find that if the program director is a line administrator, the quality is likely to be low ( $r = -.41$ ).

From the Title III Needs Assessment in Illinois (Wharton) it appears that superintendents and principals place a very low priority on the need for gifted programs--much lower than the other nine groups of teachers, parents, school board members, etc., surveyed. Given the fact that the line administrator has another full-time job, that he places low priority on gifted programs, that he got involved in order to get extra money for the district, and that he needs that money elsewhere, he is not likely to spend much time developing a gifted program. A teacher or staff administrator who is appointed director, on the other hand, is likely to take the job seriously and try to develop the program.

Another important factor is the degree of director involvement in the program. The lowest level of director involvement is merely filling out forms and handling the budget. The highest level is actually teaching some classes and conducting training for teachers. Only 24% of the directors fit the highest category. However, the involvement of the director is an important correlate of program quality ( $r = .47$ ). In comparing the interviews of directors with those of teachers and students, it was apparent that the great majority of directors had very little idea of what was happening in the classroom. The role of the director indicates the great importance of having a strong advocate for the program within the district. Anything that weakens this program advocacy is likely to weaken the quality of the program. The amount of training of the director has little effect on program quality.

Communication Factors: Visits from university consultants ( $r = .42$ ) and state staff members ( $r = .40$ ) are associated with high quality programs. Generally, the more information a district receives through consultants and training the better the program. However, by themselves, visits to demonstration centers, visits from demonstration personnel, and conducting in-service programs within a district are not related to quality.

Teacher Characteristics: Selecting teachers because they volunteer or are interested is negatively associated with quality ( $r = -.40$ ). In the better programs the director selects the teachers on the basis of whether they are change-minded. Selecting teachers on the basis of perceived competence, previous training, or experience has little effect. Total years teaching and years teaching in the gifted program are of no consequence. Neither is amount of past training although other studies indicate that particular kinds of training are effective (Erlandson, 1969; Koojumjian, 1968). "Self-assessment" procedures specially developed and applied in summer institutes seem to be particularly effective. However, it was not possible on the basis of our data to distinguish types of teacher training.

Budget Categories: Another way of looking at programs is through the budgets. The positive relationship between total budget size and quality has been mentioned. Of ten budget categories, only the percentage spent on administrative salaries is associated with a quality program ( $r = .39$ ). Districts that spend a large portion of their budget for administrators' salaries are likely to pay at least part of a program director's salary. Such a person is more likely to be a strong advocate, particularly the more his salary depends on the program.

A contrary pattern is indicated by a negative relationship between quality and the percent of budget spent on "released time" for teachers.

These funds are spent on sending teachers to visit other programs, etc. Almost invariably this pattern occurs in small districts with low budgets where the director is an administrator. It is also associated with starting a program for the money ( $r = .62$ ) and is a good place to budget funds if one is going to use them for purposes other than the gifted program itself.

Proposal Indices: One of the three indices that Erlandson constructed to analyze proposals is significantly related to quality of program -- the Corrected Stimulation Index ( $r = .46$ ). This index is based on the number of programs being developed, corrected for size of the district. It is also negatively related to the percent of the budget devoted to paying for outside consultants. Apparently the effect of outside consultants is to elaborate existing programs rather than stimulate new ones. The Raw Stimulation Index (number of programs uncorrected for size of the district) and the Growth and Continuity Index were not related to quality. It would appear then that proposals do predict quality of programs at a rather modest level.

#### The Most Important Correlates

In order to determine which of the above 55 correlates were most important, seven variables were selected for a step-wise multiple correlation analysis. The ones selected were those that had the highest correlation with quality and the lowest correlations with each other. The teacher characteristics and proposal indices had to be excluded because they contained too much missing data. The results are given below:

| <u>Variable</u>                        | <u>Multiple R</u> | <u>% Variance<br/>Accounted For</u> | <u>Cumulative<br/>Variance</u> |
|----------------------------------------|-------------------|-------------------------------------|--------------------------------|
| Budget/Size of district                | .490              | 24%                                 | 24%                            |
| Expressed need for programs            | .640              | 17%                                 | 41%                            |
| Degree of director involvement         | .765              | 18%                                 | 59%                            |
| Director <u>not</u> line administrator | .784              | 3%                                  | 62%                            |
| Visits from university consultants     | .805              | 3%                                  | 65%                            |
| Number of years receiving state funds  | .815              | 1%                                  | 66%                            |
| Visits from state supervisors          | .8156             | .1%                                 | 66%                            |

From these figures the most important factor is budget/size which accounts for 24% of the variance. More money and greater size allow for greater resource flexibility in program development. Not only is there more money to spend, allowing the hiring of a full-time person, there are more teachers to select from, etc. In addition the larger district has enough specially identified students to justify a special program. Districts with less than 1375 students and \$2800 find developing a quality program extremely difficult.

The second major factor is whether the district sees a need for having a gifted program. If they do not, the chances of having a good program are quite poor. Partly subsumed within this attitude is the low priority administrators place on gifted programs. In any case the sentiments of people in the district are of critical importance.

Just as important is how active and involved a role the program director plays. If he simply does the minimum paper work and keeps track of the budget, the program is likely to be poor. The more intimately involved he is in the program's workings, the better the program is likely to be.

Significant but much less important are a) whether the director is a line administrator, b) visits from outside consultants, and c) the number of years receiving state funds. Even when the basic bias of the

line administrators is extracted, they still make for very poor program developers. Lack of time and appropriate skills are likely explanations. Line administrators are rarely instructional leaders.

Visits from outside consultants also make a small contribution. Often in education the basic change strategy, (frequently the only change strategy) is to bring in outside consultants. The payoff is modest.

Finally, simply receiving funds from the state over a period of time accounts for only 1% of the variance in quality. Unless the other conditions obtain program improvement as a function of time is slow indeed.

In 1962 Rogers and Burdge (Rogers, 1962) did a study of the rate of innovativeness of truck farmers and found that five variables accounted for 64% of the variance--the size of the farm, the farmer's opinion leadership among other farmers, his socio-economic status among his peers, the norms of his community toward innovativeness, and communication--his contacts with the outside world. If one considers director involvement as opinion leadership, whether the director is an administrator as a status factor, visits by outside consultants as communication, and recognition of the need for a gifted program as the districts' norm toward gifted programs, some interesting comparisons become possible.

| <u>Variable</u>    | <u>% Variance Accounted For</u> |                  |
|--------------------|---------------------------------|------------------|
|                    | <u>Agriculture</u>              | <u>Education</u> |
| Size               | 14                              | 24               |
| Norms              | 20                              | 17               |
| Opinion Leadership | 14                              | 18               |
| Communication      | 9                               | 3                |
| Status             | 6                               | 3                |

The similarities are striking. Although Rogers is talking about rate of innovation rather than quality of program, about individual farmers rather than a group of educators, the similarity of the variables and their relative strengths are difficult to dismiss. In fact, although impossible to prove with this study, one might hypothesize that the nature of change may be very similar in agriculture and education and perhaps in all fields. Four of the main variables are characteristic of individuals in a social system rather than characteristics of individuals or districts per se. Both the farmer and educator are caught in powerful social webs that strongly affect innovation.

#### CONCLUSIONS

The development of a new quality program is seen as being dependent upon the interaction of a small number of powerful variables. These variables are the size of the developing unit, the norms of the unit toward the innovation, the opinion leadership exerted within the district in behalf of the innovation, the status of the advocate within the system, and the contact of the system with the outside world.

Temporal sequences such as that represented by Rogers' collective adoption model do not describe actual events very well. Although it may be important that a strong advocate exist within a district in order to have a quality program, (stage 2 of Rogers' model), it may not be very important how such an advocate develops. Under these circumstances it may be impossible to delineate a necessary temporal sequence. There are many routes by which one may arrive.

The important factors mentioned above are often considered outside the professional ken of educators. Rather educators are exhorted to look toward their objectives, etc., and indeed objectives may be important

for program development. However, the factors mentioned here may be critical prerequisites to quality development. The most frequently employed change tactic--communication with outside consultants--does not have the power to improve a program dramatically. Others, like the size of district, are structural characteristics difficult to change. Opinion leadership and the norms within the district are difficult to influence but are susceptible to prolonged and intensive training as well as to certain structural conditions within the district. The short-term, cheap, and easy change efforts usually applied make little difference in and of themselves.

Finally, there is the "reversion effect". Evans (1970) has documented the importance of this effect in university adoption of instructional television. In the nine universities he studied, the pattern was very similar. "Seed money" is given the district by some outside institution. An enthusiastic advocate gets the program into operation on an experimental basis. After a few years the whole program is discontinued for insignificant reasons. Often the crisis that forced the innovation in the first place is over and the system reverts to its old pattern. Evans calls this "pseudo-acceptance". Even though the institution may carry the innovation for many years it has not really institutionalized it and in fact drops it upon finding an excuse.

Conditions ripe for such a reversion exist in the program studied here, particularly because of the low priority administrators place on gifted programs. The funds received from the state "legitimize" the program to administrators because they need money. If the funds were dropped, we would estimate, based on factors enumerated here, that only about 35% of the districts would retain their gifted programs. Similar effects have been noted in agriculture. Although more than \$30 million

dollars were spent developing gifted programs in Illinois in the post-Sputnik enthusiasm, (and measurably good results were obtained) true institutionalization has occurred in only a minority of cases.

As with instructional television in universities, the "traditional" districts will return to their previous patterns while the "modern" ones will move on to the newest innovation. Even within six years in this state-wide program the "new curricula" promoted in the earlier days had largely been supplanted by "individualized instruction" programs. Thus we see the "boom and bust" nature of educational reform. If we should have learned anything in education in the last decade it is the extreme difficulty of lasting meaningful change.

#### EDUCATIONAL IMPLICATIONS

This paper began with a consideration of how special programs develop within local school districts. In none of the 34 school districts investigated was the program developed by the Tylerian "behavioral objectives" model. The Tyler model itself is an attempt to make program development a technical act, divorced from political considerations involving the allocation of resources. Actually the allocation of resources weighs very heavily in the development of a new program and attending to technical variables to the exclusion of political ones may be the surest way to destroy a new program. It may be that where a program has already become institutionalized over a period of time or where matters of resource allocation have been resolved, it is possible to concentrate on objectives and technical concerns.

A second type of model is the Adoption model, exemplified here by Rogers' version of collective adoption of an innovation. Program development occurs when a school district adopts an innovation manufactured outside the district. This model is semi-technical in that it realizes

that legitimization of the innovation must occur within the system. For this study visits from outside consultants were found to play a significant but minor role. However, the model could not order the data in appropriate temporal sequence. Rogers' model assumes that the adopting organization is an integrated problem-solving mechanism pursuing common goals. In other words the school is going to recognize a problem, examine alternative solutions to the problem, and adopt the best solution. March (1966) and other organizational researchers have demonstrated that this is not how an organization operates. Most organizations do not examine all possible solutions but rather generate only one alternative to current procedures. Goals are hazy and conflicting, derived from the interaction of various coalitions within the school. The school is not an integrated problem-solving mechanism. In similar fashion, large-scale "R & D" models, like the Clark-Guba model (1965), assume a consensus of values among the various actors in the research/development/diffusion/adoption processes, but none exists (House, 1970b).

In studies of demonstration centers it was found that seldom does a district adopt in toto a large scale program (Kerins, 1970). Rather, teachers and administrators adopt only bits and pieces of activities that already fit into the existing structure of their school district. Change occurs but it is small-scale change. For a whole new program to come into operation there must be major shifts within the district itself.

The data in this study can be most economically described by an "Advocate" model of program development. (Or, as it were, greatly emphasizing the "initiator" phase of Rogers' model.) If the school district is seen as a set of programs contending for scarce resources, the development of a special program depends on establishing its interest within the contending field. Such a vested interest can be most clearly envisioned

as being around the person of an advocate, who sees it in his own interest to promote the program. The advocate builds the organization necessary for implementing the program by recruiting members and infusing them with basic values. At the same time he defends the integrity of the special program and sees that adequate resources are allocated to it. The requisites of this role have been brilliantly explicated by Selznick (1957). If the advocate is successful, the program becomes institutionalized.

Such a process underlies the findings of this study and best explains why some districts develop quality gifted programs and others do not. The degree of involvement of the program director is indicative of his advocacy. The norms expressed toward gifted programs indicate the degree of commitment toward the values pursued. The program is more likely to develop in large districts where there is more "slack" in resources, more gifted clientele, and more money from the state which gives the advocate a firmer power base. Receipt of state funds legitimizes the gifted program to an unenthusiastic administration. If the program director (the most likely advocate) is a line administrator, the program is less likely to develop because administrators place low priority on gifted programs and are committed to the existing resource allocation patterns. Even categorical funds will be spent on existing programs. However, if the program director is a staff administrator or teacher, he sees it in his interest (particularly if a considerable portion of his salary comes from ear-marked funds) to endorse the program militantly.

Communication with outside sources, such as university consultants, helps program development in a minor way by offering technical alternatives but is much less influential than factors within the district--unless such communication enhances the power of the advocate or influences

the norms of the district. Simply displaying technical alternatives to individuals in the district is unlikely to profoundly affect program development. On the other hand, prolonged extensive training--of certain types--is likely to be effective, and other studies indicate that this is the case.

Finally, how one views program development is closely related to how one views educational change and the nature of educational organizations. Tyler's model is a technological model of program development devoid of sociological considerations of the context of the activity. Improvement occurs by the individual continually and precisely defining his goals, learning experiences, etc. The problem of goal consensus is solved by pretending that a single individual is operating in a vacuum. None of the 34 programs studied here developed in this fashion. It may be that in the safe harbors of an affluent curriculum project, removed from the exigencies of a local school district, such a technological model can be employed profitably. However, at the heart of all the well-known curriculum projects has been a powerful entrepreneur playing much the same role described here. Technological models may be possible after other considerations.

The Adoption approach, exemplified by Rogers' model, is an engineering view. In its simplest form it presupposes the design of an innovation and its installation inside the system. It views the organization as consisting of standardized building blocks that can be replaced with improved parts, with perhaps a little technical retraining of personnel. According to this view, the trouble with education is that it does not have enough improved parts. Hence, as extensively employed by the Office of Education it is the job of regional labs, etc., to manufacture these parts. The model assumes that the goals and values of the school system

are agreed upon and only improved means of achieving these goals are needed. Neither the internal structure of the school systems nor its goals must change. To their great grief, organizations employing this model have found that the number of transplants rejected in education is very high.

The adoption model has been successfully employed in agriculture and researched by rural sociologists such as Rogers. When concerned with the adoption of a new fertilizer by a solitary farmer, the model works fairly well, because the problem of collective action by people with conflicting values is avoided. Even here, however, the best predictions of rate of innovation have been with variables characteristic of the entire social system in which the farmer is enmeshed. When applied to an individual educator, small scale change often occurs. The individual teacher or administrator adopts only those bits of the innovation which will fit into his social system. Large-scale change or program development cannot occur because of the interlockings of the social system. Intrinsic in the Adoption model is a commitment to a small scale change in the interstices of the system.

For large-scale change to occur, the social system must change. To accomodate a new program there must be internal reallocations of resources and values. This must occur within the school district. No display of technically advantageous programs can result in extended program development unless an internal restructuring occurs. One process by which this restructuring comes about has been labeled the Advocate model of program development. The school district is seen as groups of people pursuing divergent and conflicting goals. The relevant factors are political and sociological. It is only after the appropriate mustering of values and resources that significant employment of the technical models or adoption of large programs can be achieved.

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